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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,854	01/05/2004	Shunpei Yamazaki	740756-2701	3727

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EXAMINER	
COLEMAN, WILLIAM D	
ART UNIT	**PAPER NUMBER**
2823	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EX

Office Action Summary	Application No.	Applicant(s)	
	10/750,854	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	W. David Coleman	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/81/,513.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 27-30, 34-35, 37 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Littman et al., U.S. Patent 5,688,551 in view of Imahashi et al., U.S. Patent 5,529,630.

3. Littman discloses a method of manufacturing an electro-optical device substantially as claimed. See **FIGS. 1-3e**, where Littman discloses the following limitations.

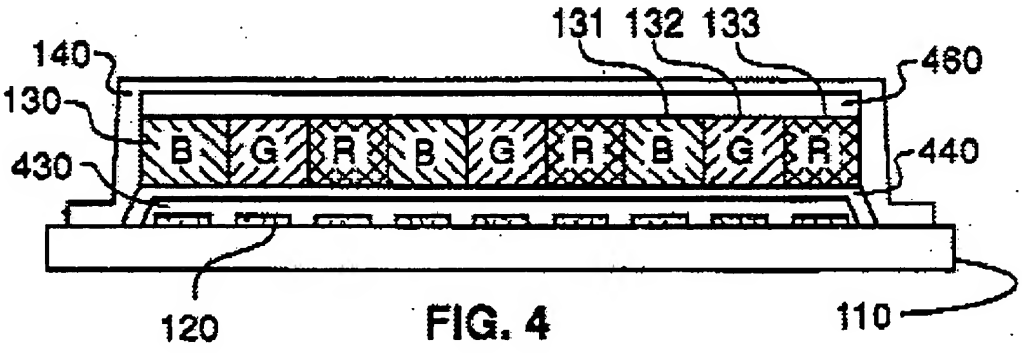


FIG. 4

4. Pertaining to claims 27, 32, 39 and 40, Littman teaches a method of manufacturing an electro-optical device comprising:

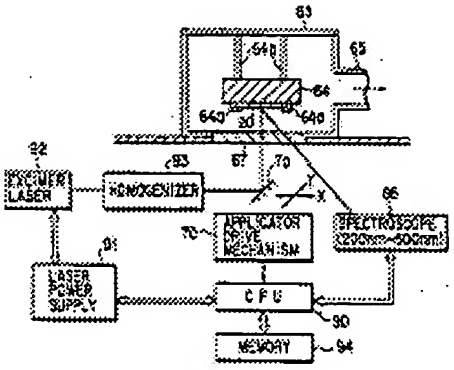
providing a substrate **110** by a substrate holder (not shown, however, Littman discloses that the film formation is performed in a vacuum and therefore a substrate holder would be highly suggested) in film formation chamber (not shown);

forming a film comprising an organic material **130** over the substrate by vapor deposition in the film formation chamber wherein said organic material is simultaneously deposited on said substrate holder. Littman further discloses irradiating the organic material with a xenon flash lamp to cause the organic material to sublime (column 7, lines 41-55);

irradiating a component provided in a film-forming chamber with a light selected from the group consisting of infrared light, UV-light, and visible light, thereby sublimating a vapor deposition material adhering to the component; and

exhausting the sublimated vapor deposition material, wherein the vapor deposition material comprises an organic light emitting material. However, Littman fails to teach removing said substrate from said reaction chamber after forming said film;

Imahashi teaches removing said substrate from said reaction chamber after forming said film; irradiating a component provided in a film-forming chamber with a light selected from the group consisting of infrared light, UV-light, and visible light. See **FIGS. 1-20**, where Imahashi teaches a multi-cluster chamber.



In view of Imahashi, it would have been obvious to one of ordinary skill in the art to incorporate the multi-cluster chamber into the Littman semiconductor process because a plurality of processes are performed on each substrate in a desired sequence (column 16, lines 19-20).

5. Pertaining to claim 32, Littman in view of Imahashi teaches the method according to claim 27, further comprising a step of forming a plasma during exhausting (please note that any volatile material reacting to the energy of the light would form a plasma).

6. Pertaining to claim 28, Littman teaches a method of manufacturing a light emitting device comprising:

providing a substrate by a substrate holder in film formation chamber;

forming a film comprising an organic material over the substrate by vapor deposition in the film formation chamber wherein said organic material is simultaneously deposited on said substrate holder;

irradiating a component provided in a film-forming chamber with a light selected from the group consisting of infrared light, UV-light, and visible light, thereby sublimating a vapor deposition material adhering to the component;

and exhausting the sublimated vapor deposition material, wherein the vapor deposition material

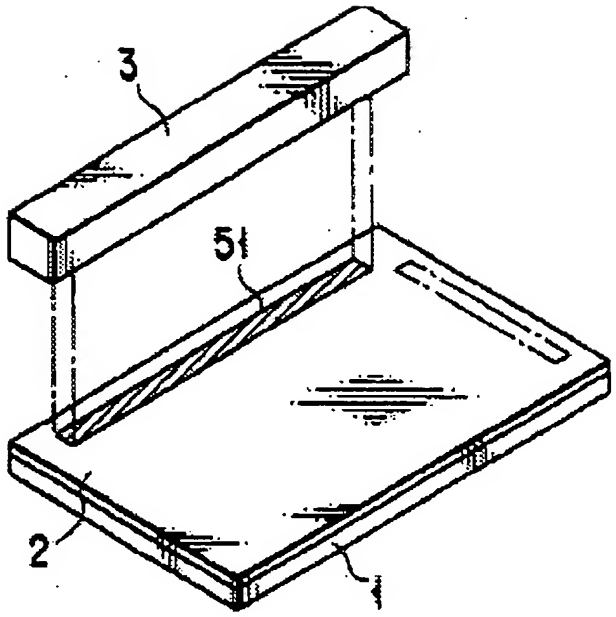
comprises an organic light emitting material. However, Littman fails to teach removing said substrate from said reaction chamber after forming said film;

Imahashi teaches removing said substrate from said reaction chamber after forming said film; irradiating a component provided in a film-forming chamber with a light selected from the group consisting of infrared light, UV-light, and visible light. See **FIGS. 1-20**, where Imahashi teaches a multi-cluster chamber. In view of Imahashi, it would have been obvious to one of ordinary skill in the art to incorporate the multi-cluster chamber into the Littman semiconductor process because a plurality of processes are performed on each substrate in a desired sequence (column 16, lines 19-20).

7. Pertaining to claim 29, Littman in view of Imahashi teaches the method according to claim 27, wherein said light selected from the group consisting of the infrared light, UV-light, and visible light is radiated by using a light source provided in the film-forming chamber.

8. Pertaining to claims 30, 34 and 35, Littman in view of Imahashi teaches the method according to claims 27 and 28, wherein an irradiation surface of said light selected from the group consisting of the infrared light, UV-light, and visible light is in a rectangular or oblong shape (see **FIG. 18A** of Imahashi).

9. Pertaining to claim 37, Littman in view of Imahashi teaches the method according to claim 28, further comprising a step of forming a plasma during exhausting (please note that the light is capable of reacting with the volatiles from the organic material).

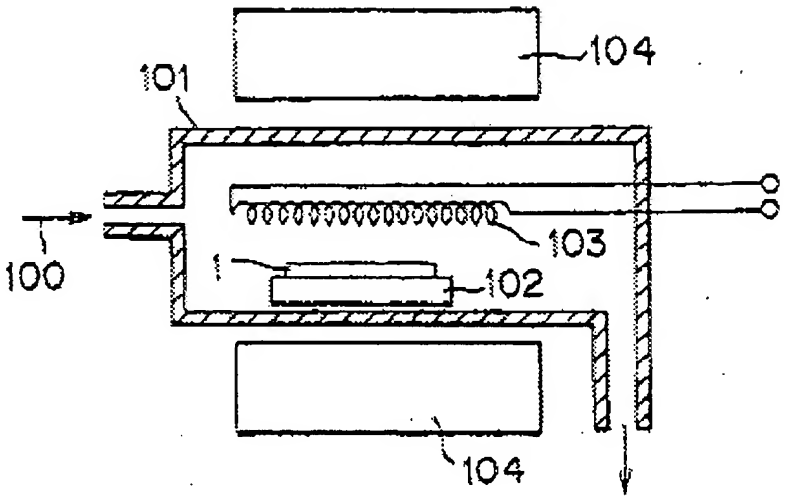


10. Claims 31, 33, 36, 37, 38 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Littman, U.S. Patent 5,688,551 in view of Imahashi et al, U.S. Patent 5,529,630 as applied to claims 27-30, 34, 35, and 39-40 above, and further in view of Yamanaka et al, U.S. Patent 6,504,215 B1.

Littman in view of Imahashi discloses a semiconductor process substantially as claimed. However, the following limitations are nor disclosed in the combined teachings.

11. Pertaining to claims 31, 41 and 42, Littman in view of Imahashi fails to teach the method according to claim 27, further comprising a step of supplying a halogen containing gas into the film-forming chamber during sublimating the vapor deposition material. Yamanaka teaches supplying a halogen containing gas into the film-forming chamber. See, **FIGS. 1(1)-53(B)**,

where Yamanaka provides motivation for the claimed limitation (in this case Yamanaka discloses the use of fluorine, which is a halogen).



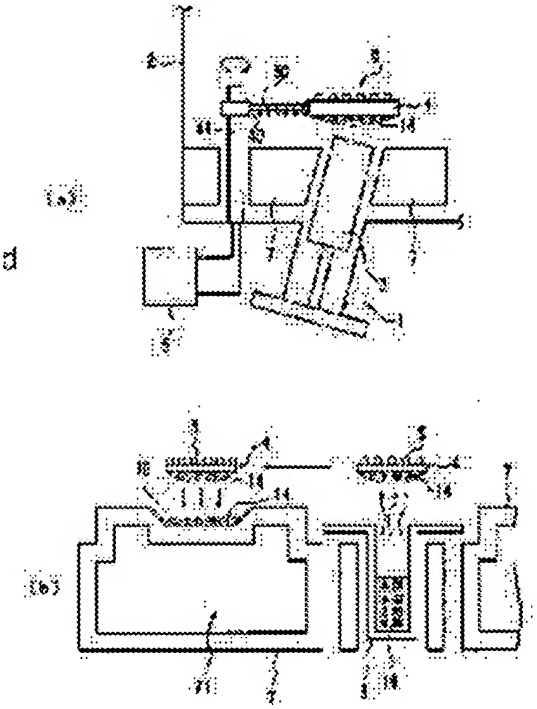
In view of Yamanaka, it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Yamanaka into the combined teachings of Littman and Imahashi because photoresist (which is a well known organic is generally used by photolithography (column12, lines 55-62).

12. Pertaining to claims 33 and 38, Littman in view of Imahashi fails to teach the method according to claims 32 and 37, wherein said plasma is an oxygen plasma. Yamanaka teaches wherein said plasma is an oxygen plasma (column 15, lines 30-35). Please note that since Yamanaka teaches forming organic TFT's it would also suggest that an oxygen plasma would be suggested and the motivation is to form a protection film.

13. Pertaining to claim 36, Littman in view of Imahashi fails to teach the method according to claim 28, further comprising a step of supplying a halogen containing gas into the film-forming chamber during sublimating the vapor deposition material. Yamanaka teaches supplying a halogen containing gas into the film-forming chamber. See, **FIGS. 1(1)-53(B)**, where Yamanaka provides motivation for the claimed limitation (in this case Yamanaka discloses the use of fluorine, which is a halogen). In view of Yamanaka, it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Yamanaka into the combined teachings of Littman and Imahashi because photoresist (which is a well known organic is generally used by photolithography (column12, lines 55-62).

14. Claims 43, 44, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagashima et al., Japanese Patent Abstracts 10-168559, in view of Imahashi et al., U.S. Patent 5,529,630

15. Nagashima discloses a semiconductor process substantially as claimed. See the drawings from the Japanese Patent Abstracts below.



16. Pertaining to claim 43, Nagashima teaches a method of manufacturing a display device comprising:

providing a substrate by a substrate holder in a film formation chamber wherein an adhesion preventing shield is provided between said substrate and an inner wall of the film formation chamber;

forming a film comprising an organic material over the substrate by vapor deposition in the film formation chamber wherein said organic material is simultaneously deposited

on said adhesion preventing shield;

heating said adhesion preventing shield to vaporize said organic material deposited on said adhesion preventing shield;

exhausting the vaporized organic material from said film formation chamber. However, Nagashima fails to teach removing said substrate from said reaction chamber after forming said

film. Imahashi teaches removing said substrate from said reaction chamber after forming said film;

irradiating a component provided in a film-forming chamber with a light selected from the group consisting of infrared light, UV-light, and visible light. See **FIGS. 1-20**, where Imahashi teaches a multi-cluster chamber. In view of Imahashi, it would have been obvious to one of ordinary skill in the art to incorporate the multi-cluster chamber into the Nagashima semiconductor process because a plurality of processes are performed on each substrate in a desired sequence (column 16, lines 19-20).

17. Pertaining to claim 44, Nagashima in view of Imahashi teaches the method according to claim 43, wherein said film comprising an organic material is a light emitting layer.

18. Claim 45 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagashima Patent Abstracts of Japan 10-168559 in view of Imahashi et al., U.S. Patent 5,529,630 as applied to claims 43 and 44 above, and further in view of Yamanaka et al., U.S. Patent 6,504,215 B1.

19. Pertaining to claims 45 and 49, Nagashima in view of Imahashi fails to teach the method according to claim 43, further comprising a step of supplying a halogen containing gas into the film formation chamber during heating said organic material. Yamanaka teaches supplying a halogen containing gas into the film-forming chamber. See, **FIGS. 1(1)-53(B)**, where Yamanaka

provides motivation for the claimed limitation (in this case Yamanaka discloses the use of fluorine, which is a halogen). In view of Yamanaka, it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Yamanaka into the combined teachings of Nagashima and Imahashi because photoresist (which is a well known organic is generally used by photolithography (column12, lines 55-62).

20. Pertaining to claim 46, Nagashima in view of Imahashi fail to teach the method according to claim 43, further comprising exposing the vaporized organic material to a plasma (please note that the light is capable of reacting with the volatiles from the organic material).

21. Pertaining to claim 47, Nagashima in view of Imahashi fail to teach a method of manufacturing an electro-optical device comprising:

providing a substrate by a substrate holder in film formation chamber;

forming a film comprising an organic material over the substrate by vapor deposition in the film formation chamber wherein said organic material is simultaneously deposited on said substrate holder;

irradiating a component provided in a film-forming chamber by scanning a lamp light source, thereby sublimating a vapor deposition material adhering to the component; and

exhausting the sublimated vapor deposition material, wherein the vapor deposition material comprises an organic light emitting material. However, Nagashima fails to teach removing said substrate from said reaction chamber after forming said film. Imahashi teaches removing said substrate from said reaction chamber after forming said film;

irradiating a component provided in a film-forming chamber with a light selected from the group consisting of infrared light, UV-light, and visible light. See **FIGS. 1-20**, where Imahashi teaches a multi-cluster chamber. In view of Imahashi, it would have been obvious to one of ordinary skill in the art to incorporate the multi-cluster chamber into the Nagashima semiconductor process because a plurality of processes are performed on each substrate in a desired sequence (column 16, lines 19-20).

22. Pertaining to claim 48, Nagashima in view of Imahashi teaches the method according to claim 47, wherein the lamp light source is selected from the group consisting of infrared light, UV-light, and visible light.

23. Pertaining to claim 50, Nagashima in view of Imahashi teaches the method according to claim 47, further comprising a step of forming a plasma during exhausting.

24. Pertaining to claim 51, Nagashima in view of Imahashi fail to teach the method according to claim 50, wherein said plasma is an oxygen plasma. Yamanaka teaches wherein said plasma is an oxygen plasma. Yamanaka teaches wherein said plasma is an oxygen plasma (column 15, lines 30-35). Please note that since Yamanaka teaches forming organic TFT's it would also suggest that an oxygen plasma would be suggested and the motivation is to form a protection film (see the rejection as applied to claims 33 and 38 above).

Conclusion

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. David Coleman
Primary Examiner
Art Unit 2823

WDC